

**WHAT IS CLAIMED IS:**

1. A system for tracking a plurality of product containers in a store environment and generating a track through the store environment representative of a continuous path followed by each of the product containers to a point-of-sale location, the system comprising:

the plurality of product containers;

a plurality of identification tags each of which is associated with and uniquely identifies one of the product containers;

a plurality of sensors in the store environment each of which has a region associated therewith within which the identification tags are detected, at least one of the plurality of sensors having within its associated region the point-of-sale location; and

a processor configured to receive location data from the plurality of sensors and generate the track therefrom.

2. The system of claim 1 wherein the plurality of containers comprises at least one of shopping carts, shopping baskets, and shopping bags.

3. The system of claim 1 wherein the plurality of identification tags comprises active transmitters.

4. The system of claim 1 wherein the plurality of identification tags comprises detectable patterns.

5. The system of claim 1 wherein the detectable pattern comprises a UPC code.

6 The system of claim 7 wherein the passive sensors comprise at least one of infrared radiation detectors and radio frequency detectors.

7. The system of claim 1 wherein the plurality of sensors comprise active sensors for detecting patterns associated with the identification tags.

8. The system of claim 7 wherein the active sensors comprise UPC code scanners.

9. The system of claim 1 further comprising a plurality of heat detectors for detecting human heat signatures associated with the plurality of containers.

10. The system of claim 9 wherein the processor is further configured to use heat signature data from the heat detectors to generate the track.

11. The system of claim 1 wherein the plurality of sensors comprises at least one starting location sensor associated with a starting region in the store environment, the track being considered valid only where the track begins in the starting region.

12. A computer-implemented method for determining effects of changing parameters in a store environment, comprising:

generating a first plurality of tracks through the store environment, each of the first plurality of tracks being representative of a continuous path followed by each of a first

plurality of product containers to a point-of-sale location before one or more store environment parameters is changed;

generating a second plurality of tracks through the store environment, each of the second plurality of tracks being representative of a continuous path followed by each of a second plurality of product containers to a point-of-sale location after the one or more store environment parameters is changed; and

analyzing the first and second plurality of tracks to determine relationships between the one or more store environment parameters and one or more of the effects.

13. The method of claim 12 wherein analyzing the first and second plurality of tracks comprises determining one or more coefficients using regression analysis to analyze selected ones of the first and second plurality of tracks, each coefficient representing a relationship between one of the store environment parameters and one of the one or more of the effects.

14. The method of claim 12 wherein the tracking system comprises:

- the product containers;
- a plurality of identification tags each of which is associated with and uniquely identifies one of the product containers;
- a plurality of sensors in the store environment each of which has a region associated therewith within which the identification tags are detected, at least one of the plurality of sensors having within its associated region the point-of-sale location; and
- a processor configured to receive location data from the plurality of sensors and generate the tracks therefrom.

15. The method of claim 14 wherein the plurality of identification tags comprises active transmitters and the plurality of sensors comprises passive sensors for detecting radiation from the transmitters.

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16. The method of claim 12 wherein the store environment parameters comprise at least one of signage, end cap position, position of special promotion areas, position and type of informational kiosks, store-within-a-store areas, shelf configuration, lighting, flooring, scents, aisle length, aisle orientation, and aisle configuration.

17. The method of claim 12 further comprising determining validity of each of the first and second plurality of tracks before analyzing the first and second plurality of tracks.

18. The method of claim 17 wherein the validity of each of the first and second plurality of tracks is determined with reference to whether the track includes any idle periods greater than a programmable time period.

19. The method of claim 17 wherein the validity of each of the first and second plurality of tracks is determined with reference to whether the track begins within a starting region in the store environment.

20. The method of claim 12 wherein the effects comprises sales of a particular item.

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21. The method of claim 12 wherein the first and second plurality of tracks are analyzed with reference to point-of-sale data generated at the point-of-sale location.

22. The method of claim 12 wherein the first and second plurality of tracks are analyzed with reference to product placement data correlating particular products with physical locations in the store environment.

23. The method of claim 12 further comprising using heat signature data to generate at least some of the first and second pluralities of tracks.

24. A computer program product comprising a computer readable medium having computer program instructions stored therein for implementing the method of claim 12.

25. The method of Claim 14 further comprising:  
presenting a virtual store environment having a plurality of virtual store parameters associated therewith corresponding to the real store parameters, the virtual store environment being characterized by virtual store effects which are determined using the virtual store parameters and the relationships between the plurality of real store parameters and the plurality of real store effects.

26. A computer-implemented method for generating tracks through a store environment, each track being representative of a continuous path followed by each of a plurality product containers, comprising:

collecting location data for each of the plurality of product containers using a plurality of sensors; and

generating each track from the location data only where the location data for the corresponding product container satisfies at least one validity criterion.

27. The method of claim 26 further comprising receiving heat signature data corresponding to a consumer associated with each of the product containers from a plurality of heat sensors, and wherein the corresponding track is generated from both the location data and the heat signature data.

28. The method of claim 26 wherein the at least one validity criterion comprises whether each of the tracks includes location data corresponding to a valid starting location.

29. The method of claim 26 wherein the at least one validity criterion comprises whether each of the tracks includes any idle periods greater than a programmable time period.

30. A computer program product comprising a computer readable medium having computer program instructions stored therein for implementing the method of claim 26.

31. The method of Claim 26 wherein a track is generated when the validity criterion that the location data for the corresponding product container indicates that the continuous path began at a predetermined starting location, ended at a point-of-sale location, and included no idle periods longer than a programmable time period are met.

32. A computer program product comprising a computer readable medium having computer program instructions stored therein for implementing the method of claim 31.

33. A computer-implemented method for simulating a store environment using consumer tracking data, the consumer tracking data comprising a first plurality of tracks through a real store environment, each of the first plurality of tracks being representative of a continuous path followed by each of a first plurality of product containers to a point-of-sale location before a plurality of real store parameters is changed, and a second plurality of tracks through the real store environment, each of the second plurality of tracks being representative of a continuous path followed by each of a second plurality of product containers to the point-of-sale location after the plurality of real store parameters is changed, the method comprising presenting a virtual store environment having a plurality of virtual store parameters associated therewith corresponding to the real store parameters, the virtual store environment being characterized by virtual store effects which are determined using the virtual store parameters and relationships between the plurality of real store parameters and the plurality of real store effects, the relationships having been determined from analysis of the first and second plurality of tracks.

34. The method of claim 33 wherein the relationships between the plurality of real store parameters and the plurality of real store effects comprise a plurality of coefficients, the coefficients having been determined using regression analysis to analyze selected ones of the first and second plurality of tracks, each coefficient representing one of the relationships between one of the real store parameters and one of a plurality of real store effects.

35. A computer program product comprising a computer readable medium having computer program instructions stored therein for implementing the method of claim 33.

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